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any, of the characteristic plants found in the lower strata of the Potomac of Virginia, while angiosperms overwhelmingly predominate in each. Until the Japanese beds show angiosperms they cannot be considered as young as the uppermost portion of the lower Potomac, which, in the Brooke locality, Virginia, and at Baltimore, Maryland, show many angiosperms.

Prof. Yokoyoma has followed Prof. Nathorst in changing from *Dioonites* to *Zamiophyllum*, the name of a cycad that, so far, is confined to the lower Cretaceous. This is the species known as *Dioonites Buchianus*. This change does not seem to be called for. The reason assigned by Prof. Nathorst does not seem weighty enough to remove a name so well fixed as this, and, if a change be made, the name *Zamiophyllum* seems open to more objections than *Dioonites*. The leaflets of *Zamia* are articulated at their junction with the rachis and deciduous, characters which are decidedly not found in *Dioonites Buchianus*. These features seem to be of more importance than the obliquity of the leaflets and their narrowing towards the base, which characters in *Dioonites Buchianus* Professor Nathorst presents as objections to regarding this plant as a *Dioonites*.

Wm. M. FONTAINE.

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*Repetitorium der Chemie.* By DR. CARL ARNOLD. Sixth Revised and Enlarged Edition. Hamburg and Leipzig, Leopold Voss. 1894. 8°. Pp. x+613. Paper. Price, 6 marks.

This book has been written for medical students and is intended to be used by them as a convenient reference book in connection with lectures upon inorganic and organic chemistry and in preparing for examinations. That there is a demand for such a book is shown by the fact that since it first appeared, in 1884, six editions have been called for.

The work is divided into three sections. In the first one of fifty pages the general principles of the science are considered. Such topics as the laws of stoichiometry, the atomic and molecular theory, the determination of molecular and atomic weights, theory of valence, constitutional formulas and the periodic classification of the elements are here discussed. The treatment of these subjects is necessarily very brief and is not intended to be exhaustive. As far as it goes, however, it is clear and concise, and, on the whole, the views of the author represent fairly well the present position of the science. To a few statements, such as those on pages 6 and 31 that heat, light, electricity and chemical affinity are known to be different forms of motion (*bekanntlich nur verschiedene Bewegungsformen darstellen*), one is inclined to take exception.

The second section of 216 pages deals with descriptive inorganic chemistry. The elements are arranged under two heads, first the non-metals, then the metals. The more important facts as to the occurrence, preparation and properties of each element and its chief compounds are here systematically and concisely presented. Newly discovered facts in this field of chemistry have not been overlooked. Thus, for example, we find here described the preparation of azoimide,  $H N_3$ , from inorganic substances; the electrolytic preparation of aluminium and magnesium; the statement that red phosphorus is crystalline, etc.

The last section of 295 pages gives a summary of the more important facts of organic chemistry. After some preliminary paragraphs upon the analysis of carbon compounds, molecular weight determination, constitutional formulas and stereochemistry, the organic compounds are taken up in the usual way. In connection with each class of compounds the general behavior and chemical characteristics of the class are discussed. In this section of the book,

as in the earlier ones, the author has endeavored to keep abreast of the times, and we find mentioned here the results of recent synthetical experiments, such as those upon the sugars ; and many new substances that in recent years have become prominent because of their medicinal properties have been introduced. While the book is not intended to be a text-book in the ordinary sense, nor to serve as an introduction to the science, it can, nevertheless, be strongly recommended to all students of chemistry, who, in connection with their lecture and laboratory courses, desire to have a convenient and compact reference book—a book containing all the more important facts of general and descriptive chemistry clearly stated and provided with an excellent index.

EDWARD H. KEISER.

*Field, Forest and Garden Botany.* A simple introduction to the common plants of the United States east of the 100th Meridian, both wild and cultivated. By ASA GRAY. Revised and extended by L. H. BAILEY. American Book Co. 1895. 8vo. pp. 519.

The first edition of this useful popular botany was issued in 1868 as a companion book to the author's 'Manual of the Botany of the Northern United States.' The present revision is planned to fill the same place as relates to the sixth edition of the 'Manual,' giving, as it does, concise descriptions of the more common native plants, and of the large number of species cultivated for use or ornament. The number of the latter category has greatly increased during the twenty-seven years which have elapsed since the first issue of the work, and as regards these the treatment is exceedingly complete. The selection of the 'common' native species has been a matter of great difficulty, and in this the book will probably be found unsatisfactory. The more usual plants of the region north of Virginia and Tennessee are for the most part in-

cluded, but the Southern native flora is almost wholly omitted, so that in this respect the title is misleading. As a guide to the cultivated species it will find its greatest value. It is our opinion, however, that if the scope of the work had been restricted to the domesticated flora, and the descriptions of these plants been more fully drawn out, it would have been more generally serviceable than by treating them with the native species.

The necessity which has been felt of making the book a companion to the 'Manual' has kept up the old and unfortunate arrangement of groups which we find in that work, although we are pleased to find that the Gymnosperms have been brought into their logical position.

N. L. B.

*Description des ravageurs de la vigne. Insects et champignons parasites.* HENRI JOLICOEUR. 4°. Riems et Paris. 1894. Pp. viii., 236, pl. 20.

This sumptuous volume with large pages and wide margins is one of the latest contributions to the rapidly increasing literature of disease of plants. The French have always taken the greatest interest in diseases of the vine, and quite naturally, because of the extent of the industry in their country. The author of the present volume is the general secretary of the Society of Viticulture and Horticulture of Reims, and while he brings to the subject a knowledge of what various French authors have to say upon the subjects discussed, from its pages there never could be gleaned the fact that the English speaking races had ever done any work upon the various diseases. This is, perhaps, a general fault of the French, since they are so imbued with admiration for their own country that other countries hold a very subordinate place.

The work under notice is divided into two parts, one treating of parasitic ani-